

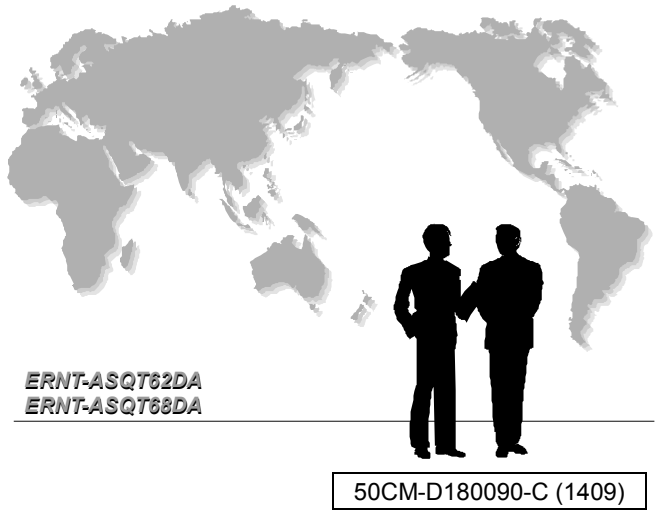
Mitsubishi **General-Purpose** Programmable Controller

Renewal Tool

Conversion Adapter

Models:
ERNT-ASQT62DA
ERNT-ASQT68DA

User's Manual



[Installation Precautions]	
CAUTION	
- When installing the converter adapter, take care not to get your hand snagged on the fittings or the like. Injury may result. - When installing or removing the MELSEC-Q Series Module complete with a converter adapter, be sure to hold it with both hands. Dropping may lead to breakage.	

[Wiring Precautions]	
WARNING	
- Before attempting to install the Unit or carry out the necessary wiring, make certain that the external power supply, used in the system, is shut off on all three phases. Failure to do so may result in electric shock or damage to the product. - When energizing the Products or putting them into operation after the completion of installation or wiring work, always have a cover placed over the terminal block for the MELSEC-AnS Series components. Without the cover placed in position, electric shock can result.	

[CAUTION]	
- Ground the FG terminals to the protective ground conductor dedicated to the programmable controller. Failure to do so may result in electric shock or malfunction. - Carry out wiring for the Conversion Adapter correctly after checking the specification and terminal arrangement for the module used. Connecting a power supply with a different voltage rating or incorrect wiring may cause a fire or failure. - Tighten the MELSEC-AnS Series terminal attaching screws and terminal screw securely by applying torque within the specified limits. Loose screws will cause short circuit, fire or malfunction. Excessive tightening will damage the screws or the Conversion Adapter which in turn will cause dropping of parts, short circuit or malfunction. - Use care to prevent foreign materials including cuttings and wiring debris from entering the Conversion Adapter or the MELSEC-Q Series module. These will be cause for fire, failure or malfunction.	

[Startup and Maintenance Precautions]	
WARNING	
- Do not touch live terminals. There is a danger of electric shock or malfunction. - Shut off the external power supply for the system in all phases before cleaning or retightening the terminal screws. Failure to do so may result in electric shock or cause the MELSEC-Q Series module to fail or malfunction. Loose screws can lead to dropping, shorting, and malfunction. Excessive tightness of the screws can lead to breakage of the screws, converter adapter, fittings, or MELSEC-Q Series Module, possibly causing the dropping, shorting, and malfunction thereof.	

[CAUTION]	
- Do not modify the Conversion Adapter or take it apart. Doing so will cause failure, malfunction, personal injury, or fire. - The Conversion Adapter comes in a resin case. Do not drop the Adapter or give a strong impact to it. This will cause damage to the Adapter.	

[Disposal Precautions]	
CAUTION	
When you dispose of the Products, handle them as industrial waste.	

1. General Description

This manual provides information about the Conversion Adapter (ERNT-ASQT62DA/ASQT68DA) available as Renewal Tools for the Mitsubishi General-Purpose Programmable Controller.

The Conversion Adapter is a product for effecting conversion to transcend difference in pin assignment between the MELSEC-AnS Series and the MELSEC-Q Series.

Before attempting to make a switch from MELSEC-AnS Series to MELSEC-Q Series in your installation, consult the user's manual supplied with individual module under the latter series to learn about how they differ in various aspects including performance and function.

Item name		Quantity
Adapter		1
Fittings		1
Fittings attaching screws (M3.5 x 6)		2
Terminal block cover		1

2. General Specifications

Item	Specifications					
Operating ambient temperature	0 to 55°C(Maximum surrounding air temperature 55°C)					
Storage ambient temperature	-25 to 75°C					
Operating ambient humidity	5 to 95%RH, non-condensing					
Storage ambient humidity						
Vibration resistance	Compliant with JIS B 3502 and IEC 61131-2		Frequency	Constant acceleration	Half amplitude	Sweep count
		Under intermittent vibration	5 to 8.4Hz	—	3.5mm	10 times each in X, Y, Z directions
			8.4 to 150Hz	9.8m/s ²	—	
		Under continuous vibration	5 to 8.4Hz	—	1.75mm	—
8.4 to 150Hz	4.9m/s ²		—			
Shock resistance	Compliant with JIS B 3502 and IEC 61131-2 (147 m/s ² , 3 times each in 3 directions X, Y, Z)					
Operating atmosphere	No corrosive gases					
Operating altitude *1	0 to 2000m					
Installation location	Inside a control panel					
Overvoltage category *2	II or less					
Pollution degree *3	2					

*1 : Do not use or store under pressure higher than the atmospheric pressure of altitude 0m.

*2 : This indicates the section of the power supply to which the equipment is assumed to be connected between the public electrical power distribution network and the machinery within premises.

Category II applies to equipment for which electrical power is supplied from fixed facilities.

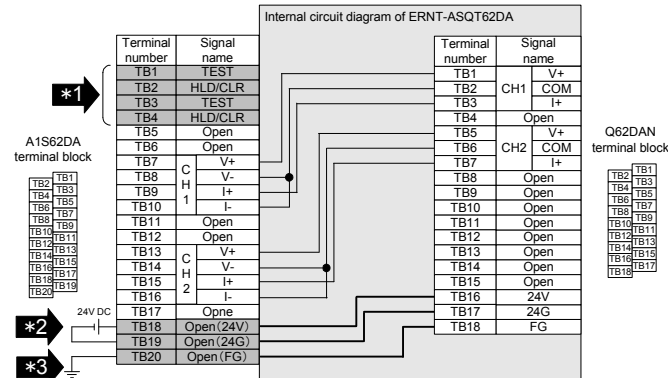
*3 : This index indicates the degree to which conductive material is generated in terms of the environment in which the equipment is used.

Pollution level 2 is when only non-conductive pollution occurs. A temporary conductivity caused by condensing must be expected occasionally.

3. Product Specifications

For detail specifications which do not appear in the specification comparison charts contained herein, see the user's manual supplied with the MELSEC-Q Series module you use. Those parts of the specification that differ between the MELSEC-AnS Series and the MELSEC-Q Series are where a switch from the first series to the second is subjected to specification-related restrictions. Check the specification of the devices to be connected for more details.

Conversion Adapter model name	MELSEC-AnS Series	Number of analog input points	MELSEC-Q Series	Mass of Conversion Adapter (g)
ERNT-ASQT62DA	A1S62DA	2	Q62DAN	75



POINT	
*1	Q62DAN is not provided with a terminal for Offset/Gain setting or Output Hold/Clear setting purposes. Make Output Hold/Clear setting by choosing an appropriate Q62DAN intelligent function module switch setting. For more details about the Offset/Gain setting and Output Hold/Clear setting, see the Q62DAN User's Manual.
*2	Q62DAN requires power supply. Therefore, use the opened terminals (TB18, TB19) of A1S62DA to provide 24VDC power supply to Q62DAN.
*3	Be sure to establish a ground for the FG terminal (TB18) of Q62DAN using the open terminal (TB20) of A1S62DA.

Specification Comparison Chart					
Item		A1S62DA		Q62DAN	
Digital input		Signed 16-bit binary		Signed 16-bit binary normal resolution mode : -4096 to 4095 high resolution mode : -12288 to 12287, -16384 to 16383	
		Voltage Output	Current Output		
		1/4000 -4000 to 4000	0 to 4000		
		1/8000 -8000 to 8000	0 to 8000		
		1/12000 -12000 to 12000	0 to 12000		
Analog output	Voltage	-10 to 0 to 10V DC (External load resistance : 2kΩ to 1MΩ)		-10 to 10V DC (External load resistance : 1kΩ to 1MΩ)	
	Current	0 to 20mA DC (External load resistance : 0Ω to 600Ω)		0 to 20mA DC (External load resistance : 0Ω to 600Ω)	
I/O characteristics		Resolution			
		1/4000	1/8000	1/12000	
		Analog output value			
		10V			
	Digital input	4000	8000	12000	Digital input range
		2000	4000	6000	0 to 5V
		0	0	0	1 to 5V
		-2000	-4000	-6000	-10 to 10V
		-4000	-8000	-12000	User range setting
		-6000	-8000	-12000	0 to 20mA
	Digital input value	2000	4000	6000	12mA
		0	0	0	4mA
Maximum resolution		Voltage Output			
		1/4000	2.5mV/10V	5μA/20mA	
		1/8000	1.25mV/10V	2.5μA/20mA	
		1/12000	0.83mV/10V	1.7μA/20mA	
Overall accuracy		Voltage : ±1.0%(±100mV)		Ambient temperature 25±5°C : Within ±0.1%	
		Current : ±1.0%(±200μA)		(Voltage : ±10mV, Current : ±20μA) Ambient temperature 0 to 55°C : Within ±0.3% (Voltage : ±30mV, Current : ±60μA)	
Maximum conversion time		Maximum 25 ms/2 channels (same for 1 channel)		80 μs/channel	
Absolute maximum output	Voltage	±12 V		±12 V	
	Current	28 mA		21 mA	
Analog output points		2 channels/module		2 channels/module	
Insulation method	Between the output terminal and programmable controller power	Photocoupler insulation		Photocoupler insulation	
	Between channels	Non-insulation		Non-insulation	
	Between external supply power and analog output	-		Transformer insulation	
No. of occupied points		32 points		16 points	
Connected terminal block		20-points terminal block		18-points terminal block	
Current consumption		0.80 A		0.33 A	
External supply power	Voltage	-		24V DC ±20%, -15%	
	Current	-		0.15A	

<Specification Comparison Chart>		
Item	A1S68DAV	Q68DAVN
Digital input	Signed 16-bit binary -2048~2047	Signed 16-bit binary normal resolution mode : -4096 to 4095 high resolution mode : -12288 to 12287, -16384 to 16383
Analog output	-10 to 0 to 10V DC (External load resistance : 2kΩ to 1MΩ)	-10 to 10V DC (External load resistance : 1kΩ to 1MΩ)
I/O characteristics	Digital input value 2000 1000 0 -1000 -2000	Digital input value 0 to 5V 1 to 5V 0V -10 to 10V User range setting
	Analog output value 10V 5V 0V -5V -10V	Normal resolution mode Digital input value 0 to 4000 Maximum resolution 1.25mV 1.0mV 2.5mV 0.75mV
Maximum resolution	5mV	High resolution mode Digital input value 0 to 12000 Maximum resolution 0.416mV 0.333mV 0.625mV 0.333mV
Overall accuracy	±1.0%(±100mV)	Ambient temperature 25±5℃ : Within ±0.1% (±10mV) Ambient temperature 0 to 55℃ : Within ±0.3%(±30mV)
Maximum conversion time	Maximum 4 ms/8 channels	80 μs/channel
Absolute maximum output	-	±12V
Analog output points	8 channels/module	8 channels/module
Insulation method	Between the output terminal and programmable controller power supply	Photocoupler insulation
	Between channels	Non-insulation
	Between external supply power and analog output	Transformer insulation
No. of occupied points	32 points	16 points
Connected terminal block	20-points terminal block	18-points terminal block
Current consumption	0.65 A	0.36 A
External supply power	Voltage	24V DC +20% , -15%
	Current	- 0.2 A

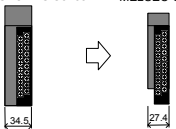
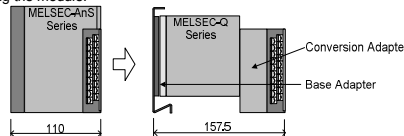
POINT
1. A1S68DAV and Q68DAVN differ from each other in the way input/output signals (X, Y) and buffer memory addresses are allocated. Therefore, you need make necessary changes to the sequence program that is used.

4. Mounting and Installation

4.1 Handling Instructions

- Before attempting to install the Unit or carry out the necessary wiring, make certain that the external power supply, used in the system, is shut off on all three phases. Failure to do so may result in electric shock or damage to the product.
- Do not touch live terminals. There is a danger of electric shock or malfunction.
- Do not modify the Conversion Adapter or take it apart. Doing so will cause failure, malfunction, personal injury, or fire.
- Do not touch the energized part of the Conversion Adapter directly. Contact will cause malfunction or failure in the system.
- Fasten the Conversion Adapter, and the Fittings securely with retaining screws, and tighten the screws by applying torque within specified limits. Loose screws can lead to the dropping of the converter adapter, or fittings, possibly causing breakage thereof. Excessive tightness of the screws can lead to breakage of the screws, converter adapter, fittings, or MELSEC-Q Series Module, possibly causing the dropping, shorting, and malfunction thereof.
- Use care to prevent foreign materials including cuttings and wiring debris from entering the Conversion Adapter or the MELSEC-Q Series module. These will be cause for fire, failure or malfunction.
- Do not drop the Conversion Adapter, and Fittings, and avoid giving a strong impact to them. Otherwise, breakage will result.
- If the existing system is installed on a DIN rail, the Base Adaptor is not necessary. The MELSEC-Q Series Base Module you use can be mounted onto the DIN rail.

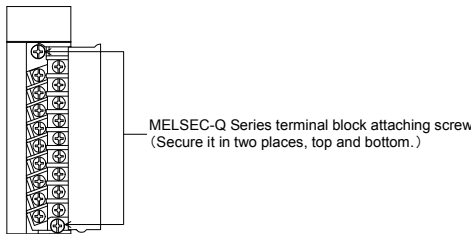
4.2 Instructions for Use

Item	Description
Width dimension of module	Because the module is reduced in width dimension (34.5mm→27.4mm) and thus in area available for wiring, check dimensional data before installing the module. < MELSEC-AnS Series > < MELSEC-Q Series >  Unit : mm
Depth dimension of module	Because the module is increased in depth dimension, check dimensional data before installing the module.  Increased by 47.5mm Unit : mm

5.1 Installation Procedure

- Secure the MELSEC-Q Series Base Module to the Base Adapter with the supplied attaching screws (M4 x 10). (Secure it in four places.)
- Mount a compatible module under the MELSEC-Q Series onto the MELSEC-Q Series Base Module.

Also, remove the terminal block installed to the MELSEC-Q Series Module by undoing the terminal block attaching screws (one at the top and the other at the bottom).



- Secure the mounting bracket to a compatible module under the MELSEC-Q Series with retaining screws (M3.5 x 6). (Secure it in two places, top and bottom.)
- Mount the Conversion Adapter onto the mounting bracket and secure it with the Conversion Adapter attaching screws (M3 x 25). (Secure it in two places, top and bottom.)

Precaution
Before tightening the installation screws, check that the Conversion Adapter has been securely installed on the MELSEC-Q Series module. Tightening the screws in floating-off state or tilting state will damage the Conversion Adapter installation screws and the mounting bracket.

- Secure the Base Adapter to the panel with the supplied attaching screws (M5 x 12). (Secure it in four places.)
- Secure the MELSEC-AnS Series terminal block to the Conversion Adapter with the supplied attaching screws (M4).
- Remove the terminal block cover from the MELSEC-AnS Series terminal block and fit the terminal block cover supplied with the Conversion Adapter in place.

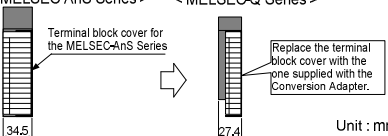
5.2 Tightening Torque

Tighten the module attaching screws by applying torque listed in the table blow. Application of improper tightening torque will cause dropping, short-circuit, failure, or malfunction.

Component attached with screw	Range of tightening torque
Base Adapter attaching screw (M5)	2.75 to 3.63N·m
Q Series module attaching screw (M4)	1.39 to 1.89N·m
Mounting bracket securing screw (M3.5)	0.68 to 0.92N·m
Conversion Adaptor attaching screw (M3)	0.43 to 0.57N·m
MELSEC-AnS Series terminal block attaching screw (M4)	0.78 to 1.18N·m

Item	A1S68DAI	Q68DAIN
Digital input	Signed 16-bit binary 0~4096	Signed 16-bit binary normal resolution mode : -4096 to 4095 high resolution mode : -12288 to 12287, -16384 to 16383
Analog output	4 to 20mA DC (External load resistance 0 to 600Ω)	0 to 20mA DC (External load resistance 0 to 600Ω)
I/O characteristics	Digital input value 4000 2000 0	Digital input value 0 to 20mA 4 to 20mA User range setting
	Analog output value 20mA 12mA 4mA	Normal resolution mode Digital input value 0 to 4000 Maximum resolution 5μA 4μA 1.5μA
Maximum resolution	4μA	High resolution mode Digital input value 0 to 12000 Maximum resolution 1.66μA 1.33μA 0.83μA
Overall accuracy	±1.0%(±200μA)	Ambient temperature 25±5℃ : Within ±0.1%(±20μA) Ambient temperature 0 to 55℃ : Within ±0.3%(±60μA)
Maximum conversion time	Maximum 4 ms/8 channels	80 μs/channel
Absolute maximum output	-	21mA
Analog output points	8 channels/module	8 channels/module
Insulation method	Between the output terminal and programmable controller power	Photocoupler insulation
	Between channels	Non-insulation
	Between external supply power and analog output	Transformer insulation
No. of occupied points	32 points	16 points
Connected terminal block	20-points terminal block	18-points terminal block
Current consumption	0.85 A	0.36 A
External supply power	Voltage	24V DC +20% , -15%
	Current	- 0.27A

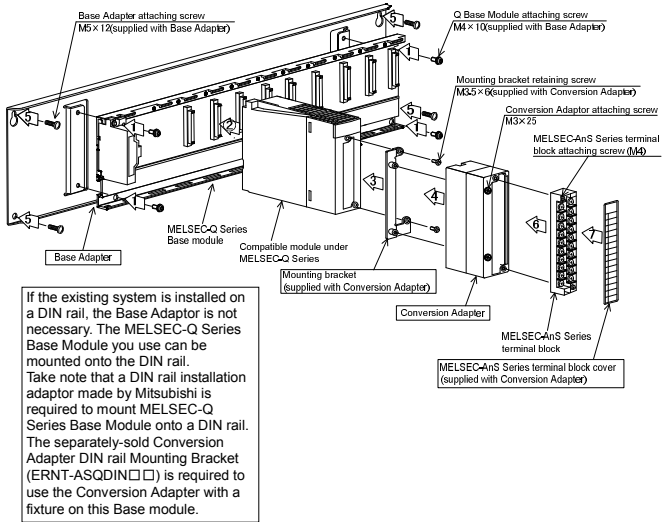
POINT
1. A1S68DAI and Q68DAIN differ from each other in the way input/output signals (X, Y) and buffer memory addresses are allocated. Therefore, you need make necessary changes to the sequence program that is used.

Item	Description
Terminal block cover	The terminal block cover for MELSEC-AnS Series is bigger than the width of the MELSEC-Q Series Module. Therefore, it is necessary to replace it with the terminal block cover supplied with the converter adapter. < MELSEC-AnS Series > < MELSEC-Q Series >  Unit : mm

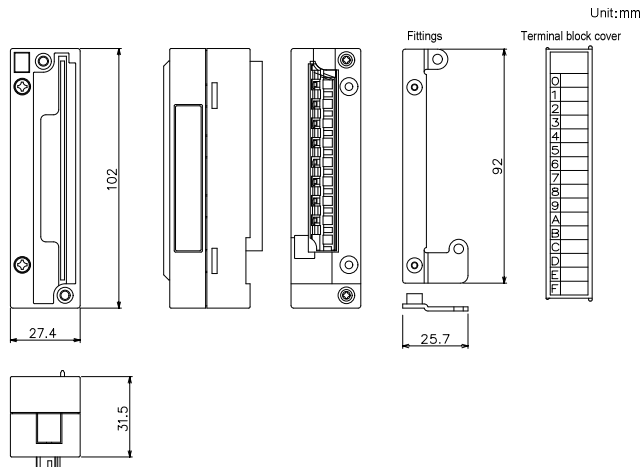
4.3 Installation Environment

For detail information, see the user's manual furnished with the MELSEC-Q Series CPU module you use.

5. Part Names and Installation Procedure



6. Dimensional Outline Drawing



Product Warranty Details

Please confirm the following product warranty details prior to product use.

Gratis Warranty Terms and Gratis Warranty Range

If any fault or defect (hereinafter referred to as "Failure") attributable to Mitsubishi Electric Engineering Company Limited (hereinafter referred to as "MEE") should occur within the gratis warranty period, MEE shall repair the product free of charge via the distributor from whom you made your purchase.

■ Gratis Warranty Period

The gratis warranty period of this product shall be one (1) year from the date of purchase or delivery to the designated place. Note that after manufacture and shipment from MEE, the maximum distribution period shall be six (6) months, and the gratis warranty period after manufacturing shall be limited to eighteen (18) months. In addition, the gratis warranty period for repaired products shall not exceed the gratis warranty period established prior to repair.

■ Gratis Warranty Range

The gratis warranty range shall be limited to normal use based on the usage conditions, methods and environment, etc., defined by the terms and precautions, etc., given in the instruction manual, user's manual and caution labels on the product.

Warranty Period after Discontinuation of Production

- MEE shall offer product repair services (fee applied) for seven (7) years after production of the product has been discontinued. Discontinuation of production shall be reported via distributors.
- Product supply (including spare parts) is not possible after production has been discontinued.

Exclusion of Opportunity Loss and Secondary Loss from Warranty Liability

Regardless of the gratis warranty period, MEE shall not be liable for compensation for damages arising from causes not attributable to MEE, opportunity losses or lost profits incurred by the user due to Failures of MEE products, damages or secondary damages arising from special circumstances, whether foreseen or unforeseen by MEE, compensation for accidents, compensation for damages to products other than MEE products, or compensation for other work carried out by the user.

Changes in Product Specifications

The specifications given in the catalogs, manuals and technical documents are subject to change without notice.

This document is a new publication, effective September 2014. Specifications are subject to change without notice.